Appl. No. 10/070,529
Amdt. Dated January 21, 2004
Response to Office Action of May 12, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

12. (Currently Amended) A device for atomizing and granulating liquid oxidic slags ~~such as, *e.g.*, converter slags, blast furnace slags or waste incineration slags~~, comprising

a slag tundish (9) having ~~an~~ a slag outlet opening (8), ~~into which~~

a height-adjustable lance (1) for a propellant jet, which opens into said slag outlet opening (8), ~~and to which~~

a cooling chamber (10) ~~is~~ connected to said tundish,

~~said outlet opening being surrounded by~~ an immersion tube (6) arranged within said tundish, said immersion tube (6) arranged to surround said slag outlet opening, arranged concentrically with said slag outlet opening, ~~while forming~~ and arranged to form an annular gap between said immersion tube (6) and said tundish, ~~wherein~~ and

a guide body (2) capable of being adjusted in the axial direction (3) of ~~the~~ said lance (1), said guide body (2) being ~~is~~ arranged in the region of ~~the~~ a nozzle mouth of the lance (1) for the propellant jet (15), which guide body deflects the propellant jet (15) in the radial direction.

13. (Currently Amended) A device according to claim 12, further comprising coolant outlets (12) arranged to ~~which~~ eject coolant into said cooling chamber (10), said coolant outlets (12) being ~~and are~~ directed radially inwards and ~~are~~ arranged concentrically

with a slag jet formed in the region of the slag outlet opening (8) or immediately following the slag outlet opening (8).

14. (Currently Amended) A device according to claim 12, wherein the slag outlet opening (8) is designed as a torus-shaped ring (11) ~~to whose~~ having an annular cavity to which a coolant supply duct (13) and radially inwardly directed coolant outlets (12) are connected.

15. (Currently Amended) A device according to claim 13, wherein the slag outlet opening (8) is designed as a torus-shaped ring (11) ~~to whose~~ having an annular cavity to which a coolant supply duct (13) and radially inwardly directed coolant outlets (12) are connected.

16. (Previously Presented) A device according to claim 12, wherein the propellant jet nozzle is designed as a Laval nozzle and the guide body (2) arranged in the propellant jet nozzle leaves a clear cross section relative to the nozzle mouth, which widens in the direction of ejection of the propellant jet.

17. (Previously Presented) A device according to claim 13, wherein the propellant jet nozzle is designed as a Laval nozzle and the guide body (2) arranged in the propellant jet nozzle leaves a clear cross section relative to the nozzle mouth, which widens in the direction of ejection of the propellant jet.

18. (Previously Presented) A device according to claim 14, wherein the propellant jet nozzle is designed as a Laval nozzle and the guide body (2) arranged in the propellant jet nozzle leaves a clear cross section relative to the nozzle mouth, which widens in the direction of ejection of the propellant jet.

19. (Previously Presented) A device according to claim 13, wherein the coolant outlets (12) are designed as Laval nozzles.

20. (Previously Presented) A device according to claim 14, wherein the coolant outlets (12) are designed as Laval nozzles.

21. (Currently Amended) A device according to claim 13, wherein the ~~pressure of the coolant ejected from the~~ coolant outlets (12) are designed so that the pressure of the coolant ejected from the coolant outlets (12) is ~~adjusted to be~~ higher than the pressure of the propellant jet (15).

22. (Currently Amended) A device according to claim 14, wherein the ~~pressure of the coolant ejected from the~~ coolant outlets (12) are designed so that the pressure of the coolant ejected from the coolant outlets (12) is ~~adjusted to be~~ higher than the pressure of the propellant jet (15).

23. (Currently Amended) A device according to claim 12, wherein said propellant jet comprises a jet of combustion off-gases and vapor ~~is used as said propellant jet~~.

24. (Currently Amended) A device according to claim 13, wherein said propellant jet comprises a jet of combustion off-gases and vapor ~~is used as said propellant jet~~.

25. (Currently Amended) A device according to claim 14, wherein said propellant jet comprises a jet of combustion off-gases and vapor ~~is used as said propellant jet~~.

26. (Currently Amended) A device according to claim 13, wherein said coolant comprises gaseous hydrocarbons ~~are used as said coolant~~.

27. (Currently Amended) A device according to claim 14, wherein said coolant comprises gaseous hydrocarbons ~~are used as said coolant~~.

28. (Previously Presented) A device according to claim 12, wherein the propellant jet is fed to the nozzle mouth of the lance (1) under supercritical pressure.

29. (Previously Presented) A device according to claim 13, wherein the propellant jet is fed to the nozzle mouth of the lance (1) under supercritical pressure.

30. (Previously Presented) A device according to claim 14, wherein the propellant jet is fed to the nozzle mouth of the lance (1) under supercritical pressure.

31. (Previously Presented) A device according to claim 13, wherein the propellant jet is fed to the nozzle mouth of the lance (1) under supercritical pressure, and the coolant is fed to the coolant nozzles (12) under supercritical pressure.

32. (Currently Amended) A device according to claim 12, wherein the guide body (2), on its ~~jacket~~ surface defining the nozzle cross section, carries guide surfaces~~, in particular curved guide surfaces, having semi-radial or tangential courses~~.

33. (Currently Amended) A device according to claim 13, wherein the guide body (2), on its ~~jacket~~ surface defining the nozzle cross section, carries guide surfaces~~, in particular curved guide surfaces, having semi-radial or tangential courses~~.

34. (Previously Presented) A device according to claim 12, further comprising a magnetic separator arranged within the cooling chamber (10) or following the cooling chamber (10).

35. (Previously Presented) A device according to claim 13, further comprising a magnetic separator arranged within the cooling chamber (10) or following the cooling chamber (10).

36. (Currently Amended) A device according to claim 12, wherein said immersion tube (6) has a lower edge (7) and the nozzle mouth of the propellant jet lance (1) is arranged above a said lower edge (7) of the immersion tube (6).

37. (Currently Amended) A device according to claim 13, wherein said immersion tube (6) has a lower edge (7) and the nozzle mouth of the propellant jet lance (1) is arranged above a said lower edge (7) of the immersion tube (6).

38. (Currently Amended) A device for atomizing and granulating liquid oxidic slags ~~such as, e.g., converter slags, blast furnace slags or waste incineration slags~~, comprising

a slag tundish (9) having ~~an~~ a slag outlet opening (8), ~~into which~~

a height-adjustable lance (1) for a propellant jet, which opens into said slag outlet opening (8), ~~and to which~~

a cooling chamber (10) ~~is~~ connected to said tundish,

~~said outlet opening being surrounded by~~ an immersion tube (6) arranged within said tundish, said immersion tube (6) arranged to surround said slag outlet opening, arranged concentrically with said outlet opening, ~~while forming~~ and arranged to form an annular gap between said immersion tube (6) and said tundish, ~~wherein~~ and

a guide body (2) capable of being adjusted in the axial direction (3) of ~~the~~ said lance (1), said guide body (2) being ~~is~~ arranged in the region of ~~the~~ a nozzle mouth of the lance (1) for the propellant jet (15), which guide body deflects the propellant jet (15) in the radial direction; and further comprising

coolant outlets (12) arranged to ~~which~~ eject coolant into said cooling chamber (10), said coolant outlets (12) being ~~and are~~ directed radially inwards and ~~are~~ arranged concentrically with a slag jet formed in the region of the slag outlet opening (8) or immediately following the outlet opening (8);

a magnetic separator arranged within the cooling chamber (10) or following the cooling chamber (10); and wherein

the slag outlet opening (8) is designed as a torus-shaped ring (11) ~~to whose~~ having an annular cavity to which a coolant supply duct (13) and radially inwardly directed coolant outlets (12) are connected;

the propellant jet nozzle is designed as a Laval nozzle and the guide body (2) arranged in the propellant jet nozzle leaves a clear cross section relative to the nozzle mouth, which widens in the direction of ejection of the propellant jet;

the coolant outlets (12) are designed as Laval nozzles;

said propellant jet comprises a jet of combustion off-gases and vapor ~~is used as said propellant jet~~;

said coolant comprises gaseous hydrocarbons ~~are used as said coolant~~;

the propellant jet is fed to the nozzle mouth of the lance (1) under supercritical pressure, and the coolant is fed to the coolant nozzles (12) under supercritical pressure;

the guide body (2), on its ~~jacket~~ surface defining the nozzle cross section, carries guide surfaces, ~~in particular curved guide surfaces, having semi-radial or tangential courses~~; and

said immersion tube (6) has a lower edge (7) and the nozzle mouth of the propellant jet lance (1) is arranged above a said lower edge (7) of the immersion tube (6).

39. (New) A device according to claim 32, wherein the guide surfaces are curved guide surfaces having semi-radial or tangential courses.

40. (New) A device according to claim 33, wherein the guide surfaces are curved guide surfaces having semi-radial or tangential courses.